REMARKS

Claims 1-5, 7-11 and 13 are pending and at issue in the application with claims 1 and 7 being the independent claims. No claims have been amended, added or cancelled. Reconsideration of the rejections in view of the remarks below is respectfully requested.

Regarding the objection to the drawings under 37 C.F.R. § 1.83(a), the applicant notes that the action requested the applicant to not add an air gap control unit to the drawings. The applicant interprets this request as an abeyance of the objection pending resolution of the new matter rejection, as discussed below.

The applicant respectfully traverses the new matter objection to the specification as well as the rejection of claims 1-5, 7-11 and 13 under 35 U.S.C. § 112, first paragraph.[1] A rejection under 35 U.S.C. § 112, first paragraph cannot be maintained simply because the exact language of a claim is not present in the application. While the action is correct that 35 U.S.C. § 132(a) states that new matter is not allow, as explained in 37 C.F.R. § 1.75(d)(1), "[t]he claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description." In other words, as long as the claim language finds clear support in the originally filed application, the claim language is proper and not new matter.

The originally filed specification provides several examples of "an air gap control unit for maintaining distance between the solid immersion lens and the optical recording medium, independent from the focus control signal generated from the focus control unit," so as to reasonably convey possession of the invention at the time of filing. As an initial matter, there is no question that originally filed claims 6 and 12 disclosed "an air gap control unit for maintaining distance between the solid immersion lens and the optical recording medium," which was also disclosed throughout the originally filed application. While the specific phrase "independent from the focus control signal generated from the focus control unit" does not appear within the specification, it nonetheless finds clear support throughout the

[1] Although the action makes repeated reference to claims 1-13, the applicant notes that only claims 1-5, 7-11 and 13 are pending. Accordingly, the applicant's remarks are limited to only the pending claims.

originally filed application. For example, page 6, lines 4-15 and page 9, line 24 to page 10, line 2 discloses that an air gap may be maintained between the SIL 180 and the disc 200 by a conventional holding apparatus. As further disclose in these passages, when the disc is thicker or thinner than a standard thickness, the focus control unit 300 generates a focus signal to shift the light source 110 toward or away from the disc. Accordingly, the original specification discloses that an air gap control unit maintains the distance between the SIL and the recording medium, while the focus control unit 300 generates the focus control signal. There is no dependent or causal relationship between the air gap and the focus control signal. In other words, the mechanism for maintaining the air gap is not dependent upon the focus control signal. Instead, the air gap is maintained independent of the focus control signal.

This is further demonstrated in the figures. For example, Figs. 1, 2 and 5 disclose examples of an optical pickup apparatus, where the air gap between the SIL 180 and the optical disc 200 is clearly shown as being independent of the focus control unit 300. In particular, the air gap is not disclosed as being logically interconnected with or dependent upon the focus control signal from the focus control unit 300. Figs. 3(a)-(c) disclose examples of the air gap being maintained independent of the focus control signal causing the light source to shift towards or away from the disc. Indeed, as noted on page 2, lines 8-14 and lines 25-29, the air gap must be properly maintained and deviations in the disc thickness cannot be compensated for by an adjustment of the air gap. There is simply no logical reason why the air gap would be dependent upon a focus control signal that causes the light source to shift, when the air gap is to be properly maintained. Accordingly, those of ordinary skill in the art would readily understand and appreciate from the disclosure that the mechanism for maintaining the air gap between the SIL and the disc would be independent of the focus control signal which causes the light source to shift. From the above examples, an air gap control unit for maintaining distance between the solid immersion lens and the optical recording medium, independent from the focus control signal generated from the focus control unit is clearly supported by the original specification and is not new matter.

For at least the above reasons, the applicant respectfully requests withdrawal of the objection and rejection. Should the objection and/or rejection be maintained, the applicant requests a detailed explanation as to how the cited passages from the original application do

not provide support for the phrase "an air gap control unit for maintaining distance between the solid immersion lens and the optical recording medium, independent from the focus control signal generated from the focus control unit," and how the meaning of this claim feature is not ascertainable by reference to the description.

The applicant respectfully traverses the rejection of claims 1-5, 7-11 and 13 under 35 U.S.C. § 112, second paragraph as indefinite for lacking antecedent basis. The recitation of "an air gap control unit" in claims 1 and 7 is the first such recitation of this feature in each corresponding claim set. Accordingly, antecedent basis is not required for features that are first being introduced in a claim. There is no further recitation of "air gap control unit" thereafter in claims 1 or 7, or in any of the corresponding dependent claims. Accordingly, the applicant respectfully requests withdrawal of the rejection.

Turning to the prior art rejections, the applicant respectfully traverses the rejections of claims 1-13 under 35 U.S.C. § 103 as unpatentable over Kikuchi (U.S. Patent No. 6,353,582) in view of Corle et al. (U.S. Patent No. 5,125,750).

Kikuchi is directed to an optical pickup device. A first disclosed embodiment of an optical pickup device generally includes (in the order that light travels through the device): a light source 11, a beamsplitter 12, a collimator lens 13, an objective lens 14, an optical disk 15, and a photodetector 20 (for light reflected from the optical disk 15). Kikuchi, col. 2, line 61 to col. 3, line 14 and Fig. 1. An error signal generated by the photodetector 20 is used by a drive circuit 40 to adjust the position of the collimator lens 13. Kikuchi, col. 4, lines 9-12. A second disclosed embodiment of an optical pickup device generally includes (in the order that light travels through the device): a light source 51, a collimator lens 52, a beamsplitter 53, compensating lenses 54 and 55, an objective lens 56, an optical disk 57, and a photodetector 60 (for light reflected from the optical disk 57). Kikuchi, col. 6, line 59 to col. 3, line 9 and Fig. 9. An error signal generated by the photodetector 60 is used by a drive circuit 67 to adjust the position of the compensating lens 55. Kikuchi, col. 7, lines 55-58.

Corle et al. is generally directed to an optical recording system. The optical recording system generally includes (in the order that light travels through the device), a laser 21, a beam splitter 22/28, an objective lens 23, a solid immersion lens (SIL) 26 and an optical

storage medium 16. Corle et al., col. 2, line 46 to col. 3, line 66 and Figs. 3 and 4. The SIL 26 and the objective lens 23 are maintained by a servosystem. Corle et al., col. 3, lines 52-66 and Figs. 3 and 4.

The action asserts that it would have been obvious to use the objective lens 23 and the SIL 26 Corle et al. as an objective lens system, and use the servosystem of Corle et al. as an air gap control unit in the optical pickup device of Kikuchi. However, even if combined as suggested in the action, the combination of Kikuchi and Corle et al. fails to teach or suggest all recited limitations of independent claims 1 and 7.

Claims 1 and 7 each recite "an air gap control unit for maintaining a distance between the solid immersion lens and the optical recording medium." The action relies on Corle et al. for this feature, citing col. 2, line 46 to col. 3, line 66. See p. 5 of the action. The applicant respectfully submits that Corle et al. nowhere discloses, teaches, or suggests that the air gap distance between its SIL 26 and optical storage medium 16 is maintained at a desired value independent of a focus control signal from a focus control unit in order to compensate for thickness variations in successive optical disks. The cited passage of Corle et al. discloses that the servosystem maintains the position of the SIL 26 (Corle et al., col. 3, lines 52-66) and the objective lens 23 is moved by the servo system to compensate for the optical storage medium (Corle et al., col. 3, line 67 to col. 4, line 12, and Figs. 3 and 4). Instead of adjusting a light source (such as the laser 21 of Corle et al.) or a collimated lens in response to a signal from a focus control unit, as recited in claims 1 and 7, the system of Corle et al. uses the servosystem to control both the objective lens 23 and the SIL 26. Corle et al. does not disclose that the position of the SIL 26 versus the optical medium 16 is maintained independent of the control signal for the objective lens 23.

Additionally, claim 1 recites "a position adjustment unit, connected to the light source or the collimated lens," while claim 7 similarly recites "a position adjustment unit, connected to the light source." As a consequence of using the servosystem to control both the objective lens 23 and the SIL 26, Corle et al. does not disclose both a position adjustment unit and an air gap control unit. The action relies on the drive circuits 40 and 67 of Kikuchi for this limitation. See pp. 4 and 5 of the action. However, neither of the two embodiments disclosed by Kikuchi teaches or suggests the particular structure recited in the claims. As an

initial matter, neither of the disclosed drive circuits is connected to a light source (i.e., as recited in claim 7). Further, while the drive circuit 40 adjusts the position of the collimator lens 13, the collimator lens 13 is not interposed between the light source 11 and the beamsplitter 12 (i.e., as recited in the first three limitations of claim 1). Similarly, the drive circuit 67 adjusts the position of the compensating lens 55, and is not connected to the light source 51 or the collimator lens 52 (i.e., as recited in claim 1). Likewise, Corle et al. adjusts the position of the objective lens 23 and is not connected to the laser 21 (and does not disclose a collimator lens).

The claims generally recite an optical pickup apparatus having a solid immersion lens whose planar surface faces a substrate of an optical recording medium. Light passing through the solid immersion lens is focused through the substrate onto a signal recording surface of the optical recording medium. Therefore, the recited optical pickup apparatus includes both a position adjustment unit and an air gap control unit to combine the advantages of (1) reducing the light spot size of the focused light, (2) protecting the signal recording surface, and (3) compensating for normal substrate thickness variations during manufacturing. By utilizing both control units in the same device, the resulting optical pickup apparatus is more versatile than conventional devices because the position adjustment unit can compensate for substrate thickness variations, while the air gap control unit can maintain the distance between the solid immersion lens and the optical recording medium in a near-field limit.

Additionally, claims 1 and 7 recite that the substrate is interposed between the planar surface of the solid immersion lens and the signal recording surface, and

"an air gap control unit for maintaining a distance between the solid immersion lens and the optical recording medium, independent from the focus control signal generated from the focus control unit,

wherein the beams from the beamsplitter enter the solid immersion lens, and are then focused through the substrate onto the signal recording surface."

The elements of claims 1 and 7 allow compensation for the thickness deviation of the substrate. According to the recited elements, the position adjustment unit may respond to

thickness variation of the substrate, while the air gap control unit may maintain the distance between the optical pickup apparatus and the optical recording medium in a near-field limit.

In view of the foregoing, the applicant submits that the combination of Kikuchi and Corle et al. fails to teach or suggest all recited elements of claims 1 and 7 (i.e., lacking both the position adjustment unit and the air gap control unit). Further, the cited combination also fails to recognize the advantages resulting from the use of both control units.

In addition to the above, one of ordinary skill in the art would not look to combine Kikuchi and Corle et al. based on the rationale provided in the action (i.e., to reduce the spot diameter, increase recording density and provide higher numerical aperture without using expensive objective lenses). Action page 5. Kikuchi already assumes a reduced spot diameter due to an increase in the numerical aperture (NA), thereby increasing recording density, and proposes to correct aberrations resulting from the NA increase. Kikuchi, col. 1, lines 23-42. Accordingly, there is simply no reason for one of ordinary skill in the art to reduce spot diameter, increase recording density and provide higher numerical aperture as the basis for combining Corle et al. with Kikuchi when Kikuchi already assumes reduced spot diameter and attempts to compensate for the resulting problems. Further, the disclosure of Kikuchi is premised on the idea that the increase in numerical aperture causes aberrations. Kikuchi, col. 1, lines 23-42. The system of Corle et al. appears to avoid aberrations based on the choice of material for the SIL. Corle et al., col. 3, line 67 to col. 4, line 12. Accordingly, one of ordinary skill in the art would not look to combine Corle et al. with Kikuchi, because to do so would obviate the purpose behind the disclosure of Kikuchi, which is to correct aberrations using the disclosed pickup device, not by choosing the SIL material as in Corle et al. Finally, while the action proposes the rationale of not using expensive objective lenses as a reason to combine Kikuchi and Corle et al., this premise is without merit, because both Kikuchi and Corle et al. prominently disclose using objective lenses.

Accordingly, the applicants respectfully request reconsideration and withdrawal of the obviousness rejection based on Kikuchi and Corle et al.

For the foregoing reasons, reconsideration and withdrawal of the rejections of the claims and allowance thereof are respectfully requested. Two (2) independent claims remain

in the application as previously paid for, and eleven (11) total claims remain in the application as previously paid for. The applicant believes no fee is due. However, the commissioner is hereby authorized to charge any deficiency in the amount enclosed or any additional fees which may be required under 37 C.F.R. 1.16 or 1.17 to Deposit Account No. 13-2855. Should the examiner wish to discuss the foregoing, or any matter of form, in an effort to advance this application towards allowance, the examiner is urged to telephone the undersigned at the indicated number.

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Respectfully submitted,

By _____

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